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# HIGHER EDUCATION SOLUTIONS NETWORK - QUARTERLY REPORT

MICHIGAN STATE UNIVERISTY
GLOBAL CENTER FOR FOOD SYSTEMS INNOVATION
AGREEMENT NO. AID-OAA-A-13-00006

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## Acronyms & Abbreviations

| | |
|---|---|
| **AFRE** | (Department of) Agricultural, Food, and Resources Economics at MSU |
| **AgMIP** | Global Gridded Crop Model |
| **AHRD** | Academy of Human Resource Development |
| **ArcGIS** | Geographic Information System |
| **BFS** | USAID Bureau for Food Security |
| **CGIAR** | Consultative Group on International Agricultural Research |
| **DFID** | Department for International Development (United Kingdom) |
| **DSI** | Decision Support and Informatics |
| **FACET** | The Fostering Agriculture Competitiveness Employing Information Communication Technologies |
| **FAO** | Food and Agriculture Organization |
| **FSHN** | (Department of) Food Science and Human Nutrition at MSU |
| **FSP** | Food Security Policy Innovation Lab |
| **FtF** | Feed the Future |
| **GCFSI** | Global Center for Food Systems Innovation |
| **GIN** | Goal Indicator |
| **GIS** | Geographic Information System |
| **HESN** | Higher Education Solutions Network |
| **iAGRI** | Innovative Agricultural Research Initiative |
| **ICT** | Information and Communication Technologies |
| **ICT4D** | Information and Communication Technologies for Development |
| **IFAMA** | International Food and Agribusiness Management Association |
| **IFPRI** | International Food Policy Research Institute |
| **IR** | Intermediate Result |
| **LU** | Lincoln University |
| **MIT** | Massachusetts Institute of Technology |
| **M&E** | Monitoring and Evaluation |
| **MOOC** | Massive Open Online Course |
| **MSU** | Michigan State University |
| **MT1** | Megatrend 1: Population Growth, Climate Change and Pressure on the Land |
| **MT2** | Megatrend 2: Rapid Urbanization and Transformation of Food Systems |
| **MT3** | Megatrend 3: Evolution in Skills Required by Food Systems Transformation |
| **NGO** | Non-governmental organization |
| **O1** | Objective (1, 2, 3 or 4) |
| **OST** | USAID Office of Science and Technology |
| **PIM** | Policies, Institutions and Markets |
| **RAID** | Redundant Array of Independent Disks |
| **RFA** | Request for Application |
| **RUFORUM** | Regional Universities Forum for Capacity Building in Agriculture |
| **SA/SEA** | South Asia and South East Asia |
| **SIG** | Student Innovation Grants |
| **SUA** | Sokoine University of Agriculture- Tanzania |

| | |
|---|---|
| **TechCon** | Technical Convening |
| **TERI** | The Energy and Resources Institute - India |
| **TSC** | Translational Scholar Corps |
| **UC** | University of California (at Berkeley) |
| **US** | United States |
| **USAID** | United States Agency for International Development |
| **USDA** | United States Department of Agriculture |
| **WIDER** | World Institute for Development Economics Research at United Nations University |
| **WUR** | Wageningen University - The Netherlands |

# Executive Summary

During the first 3 months of 2014, the Global Center for Food Systems Innovation (GCFSI) focused on completing the needs assessment for Asia, which will serve to inform the innovation pipeline for the second round investment portfolio and subsequent RFA. Teams were asked to follow the process outlined in the strategic document attached hereto as Appendix I.

Using the East Africa Needs Assessment and Investment Portfolio, the GCFSI larger team met on many occasions to define the framework question that will guide the GCFSI targeted interventions in Africa. After much debate, the selected question was: "Where and how can multipurpose legumes[1] be scaled for sustainable intensification of maize systems and what would the potential impacts be, in the medium term, across the food system in Malawi?"[2] (See Appendix II).

The selection of the question allowed the GCFSI researchers to organize themselves along various projects that aim to test, pilot and scale innovations in Malawi. As a result, the GCFSI research teams reorganized along specific projects, thereby fostering a wave of intra-lab collaboration that broke the barriers of the previous Megatrend Team structure. GCFSI project teams were given a deadline to produce technical and cost proposals that were discussed and approved/or modified. These projects are expected to kick-off in the third quarter of year two, along with the six innovation projects that were awarded pursuant to the year one innovation grant Request for Applications (RFA) process.

In parallel to this effort, the GCFSI management team worked extensively with the GCFSI larger team and the MSU Internal Advisory Committee to restructure GCFSI to better align the work of the Center to the functions and goals we agreed in our Monitoring and Evaluation Plan. Details of the structure can be found in Appendix III. There are many benefits to this new operating structure, among them, specific accountability for project results, and a breaking of the megatrend structure to foster collaboration intra-center. This structure was vetted with the MSU Provost and senior leadership and received enthusiastic approval.

GCFSI focused efforts on selecting and establishing the East Africa Regional Innovation Hub in the Lilongwe University of Agriculture and Natural Resources (LUANAR). Details of this selection process can be found in section 2.2.5 below.

Finally, the Data Systems Informatics (DSI) team continued developing datasets, MSU Global completed the GCFSI Open Knowledge Sharing Platform, and the Translational Scholar Corps (TSC) team launched

[1] Multipurpose legumes are defined as those that provide multiple services, producing food and vegetative biomass for enhanced soil productivity, resilience to climate change and human health, e.g., pigeonpea, doubled up legumes (pigeonpea overstory, pulses such as soybean and groundnut understory), and climbing beans.

[2] Herein the definition of food systems is from Erikson 2008[2]- The relationships between social and ecological environments that comprise food provisioning systems, as well as the practices themselves; the results produced by these processes and practices on social and ecological environments, such as improved security, pollution and social welfare, including economic development; and other determinants of food security stemming from the interactions of the above factors.

the GCFSI Summer Study Abroad and Internships programs. Details of these can be found further below.

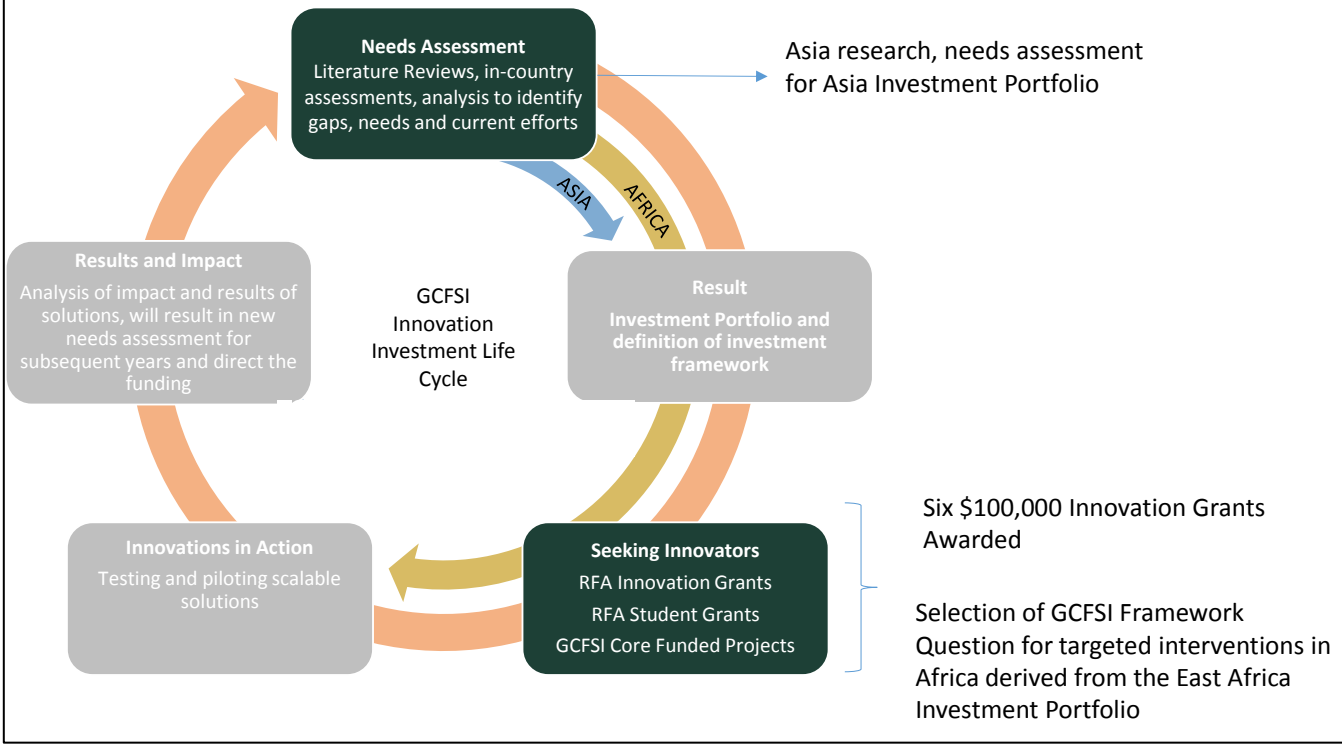
# Part 1: Key Activities

## 1.1. Summary of Key Activities

During the first part of 2014 (January-March) GCFSI focused on the following core activities:

1. Completing the Asia research that will result in the innovation pipeline for the second round investment portfolio and subsequent RFA.
2. Using the East Africa Needs Assessment and Investment Portfolio, defining a framework question to drive GCFSI targeted interventions in Africa (details in section 1.1.5 below and Appendix I).
3. Following the East Africa Investment Portfolio and RFA, awarding the first six Eat Africa $100,000 Innovation Grants (details in section 1.1.5 below).
4. Establishing the East Africa Innovation Hub in LUANAR Malawi (details in section 2.2.5 below).
5. Restructuring internal operations of GCFSI to better match the function of the Center (operations documents attached as Appendices II and III).
6. Engaging students by announcing the 2014 Study Abroad Scholarships and the 2014 Summer Internships.

**Mapping GCFSI Activities for Year 2 Q1 Against the GCFSI Innovation Investment Life Cycle**



### 1.1.1. Events

The following major events were achieved during this reporting period:

| Event Name | Description | Start Date | End Date | Location (City) | Location (Country) |
|---|---|---|---|---|---|
| **GCFSI / InnoVATE** | Visit to Cambodia, meet with Royal University of Agriculture | 01/12/14 | 01/18/14 | Phnom Penh | Cambodia |

Concerning this visit to Cambodia, GCFSI Co-Directors Reitu Mabokela and Ajit Srivastava as well as John Dirkx from MT3 met, among others, with the Royal University of Agriculture (RUA) and the USAID Mission in Cambodia, to present the work of GCFSI, and discuss possible future collaborations with RUA and other implementers in the region. The visit was organized in collaboration with USAID Cambodia Mission and Virginia Tech's InnoVATE Program.

While in Phnom Penh, the GCFSI team met a with a number of agencies and individuals including the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Labor and Vocational Training, the Secretary of State, Ministry of Education, Youth, and Sport, Leap National School of Agriculture, a group of NGO and the USAID Cambodia Mission, including USAID Agricultural Officer William Bradley. This trip served to launch discussions with the hope of implementing future food systems innovations projects in the near future.

### 1.1.2. Publications

None.

### 1.1.3. Communications

The GCFSI Communications Team produced three newsletters this period, as well as a new Gender Brochure (all available on gcfsi.isp.msu.edu). We also produced and launched a new GCFSI overview video (**website**).

MSU Global completed the GCFSI Open Knowledge Sharing Platform, which is a collaboration space for faculty, students and partners where they can support ideation, share resources and build a community. In the past three months the core pieces of the knowledge sharing platform have been developed. The site features have been designed based on results from focus groups with TSC students, feedback from faculty, and direction from the GCFSI management team. Specific deliverables over the past three months include:

- Identification of system roles and responsibilities
- Creation of a user dashboard
- Integration of the Michigan State University NetID login system
- Site layout and design

- Creation of a library where users can add contacts, program details, and resources
- Ability to approve library resources for the general public
- Blog functionality for approved users of the site
- Forum functionality for open online discussions
- Team spaces for group connectivity
- Events calendar

In addition to building the core technical pieces of the knowledge platform, MSU Global offered training sessions to TSCs and built a foundation for community support within the platform. In March, MSU Global offered an introductory training on digital storytelling through the Center for Digital Storytelling http://storycenter.org/. The elements of this training will assist TSCs in capturing stories of their work within GCFSI and sharing their stories through the platform. MSU Global also began the community building aspect of the platform through collaboration with the GCFSI communication team and through the development of communication related features within the site. The community building work will continue as the knowledge platform grows in use and functionality.

### 1.1.4. Travel

The following international travel using full or partial HESN funding occurred during this reporting period:

| Location (City, Country) | # Travelers | Partner(s) Engaged | USAID Engagement | Purpose | Outcome(s) & Next Steps |
|---|---|---|---|---|---|
| **Phnom Penh, Cambodia** | 3 | InnovATE Virginia Tech | USAID Cambodia | Srivastava, Mabokela, Dirkx. Seeking collaborations with MT3 / Mission / InnoVATE | MT3 engagement in Cambodia in 2014 |
| **Toronto, Canada** | 1 | 58th Annual Conference of the Comparative and International Education Society | None | John Bonnell presented the paper: (Re) conceptualizing the role of higher education in systems transformation: The case of Agricultural Education and Training in East Africa. | None |
| **Lilongwe, Malawi** | 1 | LUANAR | USAID Malawi | Stephanie White traveled to support the conversations to launch the GCFSI Regional Hub in LUANAR | Develop contractual relation, define project collaboration |

### 1.1.5. Solutions (Creation, Testing, Scaling)

The following innovations, technologies, and approaches were supported during this reporting period:

| GCFSI ID | Type | Name | Objective | Implementers | Location |
|---|---|---|---|---|---|
| **PHOTO** | Innovation Sub-Grant | Using Sensors to Enable Plant and Soil Measurements | Develop portable, web-based sensor to enable uploading and analysis of data | Michigan State University | East Africa |
| **EWARE** | Innovation Sub-Grant | E-Warehousing for Smallholder Farmers | Improve value chains through ICT-enabled credit and extension interventions | UC Berkeley, Grameen Foundation | Kenya |
| **MARKE** | Innovation Sub-Grant | Marketing Food Safety | Assess willingness to pay for food safety by building the capacity of a maize mill to produce aflatoxin-safe maize and facilitating sale of certified maize | University of Maryland, IFPRI, Western Michigan University, Texas A&M | Kenya |
| **IRRIG** | Innovation Sub-Grant | Building Capacity for Assessing Irrigation Innovations | Develop an assessment framework for evaluating irrigation innovations through a a participatory extension methodology | UC Davis | Uganda |
| **MIGRA** | Innovation Sub-Grant | Reducing Vulnerability to Climate Change | Estimate and identify strategies to mitigate the costs of climate change on vulnerable households | Virginia Tech | Ethiopia, Zambia |
| **POTAT** | Innovation Sub-Grant | Enhancing Vitamin-Nutrition through Orange Sweet Potatoes | Build capacity of women-based enterprises to develop orange sweet potatoes, in part through social networking and mobile phone messaging | Tuskegee University, Sokoine University | Tanzania |
| **JPMCL** | Center-Led | Scaling Agricultural Innovations Under a | Develop a generalizable model for effective scaling of biophysically | Michigan State University | Malawi |

| | | | | | |
|---|---|---|---|---|---|
| | | Changing Climate | salient agricultural innovations | | |
| **SOLAR** | Center-Led | Assessing Solar Powered Water Pumps | Assess the feasibility of solar water pumps for irrigation of crops and drinking water | Michigan State University | Malawi |
| **HAMM** | Center-Led | Profiling Legume Use, Demand and Exchange in Urban Markets | Analyze role of legumes in the informal sector and articulate special urban-based factors | Michigan State University | Malawi |
| **DAVE** | Center-Led | Mapping the Market for Legumes | Analyze qualitatively and quantitatively the market for legumes | Michigan State University | Malawi |
| **FFTCH** | Center-Led | Developing Farmer Field Schools | Develop Farmer Field Schools with farmers' input and findings from Mother/Baby Trials to provide technical information for extension staff and farmers | Michigan State University | Malawi |
| **VIDEO** | Center-Led | Training Smallholders Through Participatory Videos | Understand how to teach smallholders, especially women, about the benefits of multi-purpose legumes, and how to use ICTs to participate in local value chains | Michigan State University | Malawi |
| **OLSON** | Center-Led | Improving Productivity and Resilience to Climate Change | Model the potential impact of management practices, crops, and varieties and provide information to the government, researches, and communities | Michigan State University | Malawi |
| **MT3** | Center-Led | Mapping Education and Skills Development along the Legume Value Chain | Identify and map current systems and stakeholders for students and the workforce in the legume value chain | Michigan State University | Malawi |

### 1.1.6. Datasets

The Data Systems and Informatics Team completed the following tasks:

- Deployed the web applications for data visualization including:
  - Updated the map databases to display country shape files
  - Added cross-map querying to the triple map application
  - Streamlined the user interface on the drag and drop application
  - Added queries and a new user interface to the African aid
  - Fixed the default display options on the swipe map comparison
  - Tested multiple browsers and operating systems for use with the GIS applications and provided guidelines for users
- Server backend modifications including:
  - Adding additional ports to speed up ArcGIS mapping applications
  - Built a map cache for faster client-side map service consumption
  - Created multiple SDE databases instances to modularize mapping data per application
  - Republished mapping data allowing for additional simultaneous connections
  - Deployed map services with a join function as opposed to a shape file for significant gains in client-side speed
- Joe Messina and others are building comprehensive maps of agricultural productivity for Malawi as a test case. These maps will be provided to DSI and made widely available. In coordination Wageningen University, the Bill and Melinda Gates Foundation and GCFSI the team led by Joe Messina has designed 9 weather stations to be placed in Malawi. Data collected by these stations will be made available on DSI.

### 1.1.7. Student Engagement

The following fellowship and internship programs and field practica took place during the reporting period:

| Program or Practicum Name | Host Institution(s) | Program Location (City, Country) | Student Type (undergrad, masters, PhD, undergrad/grad) | Description |
|---|---|---|---|---|
| **GCFSI Study Abroad Scholarships** | MSU | Worldwide | All | Announcement only in the quarter |
| **GCFSI 2014 Summer Internships** | MSU | Worldwide | All | Announcement only in the quarter |

## Part 2: Intra-Development Lab/ University Engagement

## 2.1. Interdisciplinary Collaboration

- Study abroad scholarships FY2014 were announced in this period. Successful study abroad scholarship recipients will be notified next quarter.
- GCFSI internship opportunities were announced. Several MSU faculty members representing different MSU colleges were approached to identify on-going MSU projects in FTF countries for possible internship placements. Several projects were identified as potential internship sites including projects in Tanzania, Malawi, India, Nepal, and Rwanda.
- GCFSI's TSC collaborated with B-HEARD and the MCF to assess student experiences through both programs. TSC completed interviews with most of the B-HEARD students in this period and is now working on preparing a report on findings to inform the B-HEARD program.
- Charles Steinfield and Susan Wyche engaged with Maria Porter in AFRE as well as Mark Levy in Communications Arts to explore research collaboration on use of ICTs to help improve the prospects for women entrepreneurs.

## 2.2. Partner Engagement

1. MSU signed an MOU with Digital Green for potential collaboration in Malawi, to help MSU/GCFSI benefit from the digital training methodology of Digital Green, particularly for the benefit of the Video Training Program to be implemented by Charles Steinfield in Malawi.

2. MSU signed an MOU with the Canada Foundation for Sustainable Development Technology to establish parameters for collaboration in furthering of development and commercialization of innovative technologies which address security of global food systems.

3. Launched the Snapp and Messina Bill & Melinda Gates Foundation grant to complete a comprehensive mapping and modeling effort for Malawi, with the goal of focusing on marginal agricultural lands or those lands most likely to become marginal under a changing climate.

4. The Rockefeller Foundation conducted a workshop at MSU as part of its Global Engagement Network Innovation Labs initiative (19, Jan, 2014). The workshop explored key opportunities for and bottlenecks to reducing post-harvest loss in Africa. Specifically, this workshop sought to elicit feedback from a team of experts on high priority needs for which innovative solutions are warranted. The workshop was facilitated by Global Knowledge Initiative (GKI), a non-profit organization that focuses on building partnerships between people and institutions of higher education and research.

5. Of major importance this quarter was the selection and launch of the Regional Innovation Hub in LUANAR/Malawi. This decision taken by the whole of the GCFSI team in its biweekly meetings, is the result of the following steps:

    a. During the first year of the project, the lab management team members traveled to various East African countries and met with various potential hub hosts, including, Sokoine University of Agriculture in Tanzania, the University of Nairobi in Kenya, Makerere University in Uganda and LUANAR in Malawi.
    b. During these visits, the teams looked for, among others:
        i. willingness to collaborate
        ii. capacity of the institutions and its faculty to absorb the demands and needs of a regional hub

iii. the universities regional presence and outreach
iv. the laws and regulations of the host country concerning foreigners and research
v. intellectual property rights to the data collected
vi. administrative capacity of the university
vii. security of the country
viii. types of ecosystems available in the country
ix. ease of doing business and of conducting research in country

c. Upon returning to MSU, the teams requested various universities to produce proposals to host the GCFSI Regional Innovation Hub.
d. Sokoine University was not considered due to the severe complications that GCFSI had met when trying to engage their administration during year one year of activities. In addition, the capacity of Sokoine seemed to be at its limit and it seemed to the team that it would not be feasible to host a research lab in Sokoine without very high transaction costs.
e. Makerere University was eliminated only on the grounds that it is overbooked with many demands from foreign donors. The local team in Makerere indicated that faculty was stretched thin with the many research demands.
f. The University of Nairobi was a strong contender, but the GCFSI larger team was very concerned about the country laws regarding the collection and ownership of research data in Kenya. In addition, the large number of projects in country, and the initial lack of interest from the USAID Mission dissuaded the GCFSI team from selecting this as a hub location.
g. LUANAR was selected by the agreement of the whole GCFSI team for various reasons:
    i. High level of interest and engagement from the USAID Mission
    ii. High level of interest from the University leadership
    iii. Strong built connections between MSU and LUANAR which reduce the transaction costs to set-up the hub
    iv. Availability of faculty and students who have the time and interest to participate in the project
    v. Existence of three distinct ecosystems in the country which facilitate the testing in different environments
    vi. The country is generally safe for students and faculty
    vii. Although fuel costs are high, other costs of doing business were acceptable
h. Upon selection, the MSU directors sent an official letter to LUANAR indicating their decision.
i. LUANAR replied with an official letter of acceptance.
j. During the quarter, the GCFSI team selected Sieg Snapp to be the Hub director for MSU. LUANAR selected David Mkwambisi as their Hub director. GCFSI appointed Stephanie White as Hub coordinator, with support from Chuck McKeown. Maria Murphy, GCFSI Assistant Director for Management was asked to complete all the steps necessary to conduct a feasibility audit in country and to complete the administrative steps to set-up the Hub.
k. In March 2014, Stephanie White traveled to LUANAR to start engaging their faculty and present the nine projects MSU proposes to implement in Malawi.

The following partners were engaged during the reporting period:

| Partner | Partnership Funded (Funded, In kind, Unfunded) | Location (City) | Location (Country) | Outcome(s) |
|---|---|---|---|---|
| **Digital** | In Kind | Delhi | India | MOU and collaboration to implement |

| | | | | |
|---|---|---|---|---|
| **Green** | | | | Digital Green technology in Malawi |
| **Gates Foundation** | Funded | East Lansing / Lilongwe | USA / Malawi | Funding $1.5 million to develop a comprehensive mapping and modeling effort for Malawi was created with the goal of focusing on marginal agricultural lands or those lands most likely to become marginal under a changing climate |
| **LUANAR** | Funded | Lilongwe | Malawi | Establishing the East Africa Regional Innovation Hub |

# Part 3: High Value Areas of Collaboration [HVAC] (HESN Lab-to-HESN Lab)

## 3.1. Summary of Collaboration across the HESN

1. Susan Wyche engaged with members of U.C. Berkeley HESN Lab to discuss possible research collaborations. Wyche also had informal conversations with individuals affiliated with HESN lab at Duke.
2. GCFSI awarded one of the innovation grants to a team including members from UC Berkeley (E-Warehousing for Smallholder Farmers).
3. GCFSI awarded another innovation grant to a team including members from Texas A&M University (Marketing Food Safety).
4. Texas A&M awarded MSU student, Ryan Vroegindewey a grant under the Student Media Grants Program (SMGP) 2013 for his proposal Profiling Chronic Food Insecurity in Mali. Ryan's proposal was selected from among 25 applications by two different panels of judges.

# Part 4: USAID Engagement

## 4.1. USAID/Washington Interactions

Aside from routinely scheduled interactions with USAID Washington AOR and BFS, we did not have any other significant engagements to report.

## 4.2. USAID Mission Interactions

1. GCFSI engaged with USAID Cambodia during the team's visit to the country in mid-January 2014. We worked closely with William Bradley to discuss future activities between GCFSI's MT3 researchers, the team from InnoVATE and the Royal University of Agriculture.

2. Stephanie White, coordinator of the GCFSI projects in Malawi, met with members of the USAID Mission in Malawi during her visit to the country in March 2014. GCFSI is continuously engaging the Mission to ensure that the proposed work for Malawi and the engagement of the Hub has the understanding and buy-in from the local Mission.

# Part 5: Monitoring & Evaluation

## 5.1. Progress Narrative

M&E Tracker is attached (Appendix IV).

# Part 6: Lessons Learned / Best Practices

None.

# Part 7: Future Activities – April to June 2014

1. Complete the Asia Innovation Life Cycle by releasing the year two RFA for innovation grants.
2. Launch the student challenges.
3. Select the awardees of the GCFSI Study Abroad Scholarships and GCFSI Internships.
4. Launch the implementation of projects in East Africa (including 6 innovation grantees and 9 GCFSI core funded projects). Monitor implementation.
5. Complete the contractual processes to launch the East Africa Innovation Hub.
6. Discuss and possibly launch various Asia initiatives and projects.

# Part 8: Appendices

1. Appendix I: GCFSI Strategic Direction Process document.
2. Appendix II: Guiding innovation question for year two intervention in Malawi.
3. Appendix III: Functional Organizational Document.
4. Appendix IV: M&E Tracker.

# APPENDIX I

## GCFSI STRAEGIC DIRECTION PROCESS

### Year Two Phase I

### Diagnostic Process

***Stage One: Hypothesis Generation (October 2013)***

Based on their expertise and experience, the Megatrend teams will generate a series of hypotheses[3] through the lens of creating innovation in the food system and the megatrends themselves. In addition, the center will provide inter-trend support to develop integrated hypotheses that create the basis for collaboration among the teams. There is no real limit on the number of hypotheses that the GCFSI can generate. These hypotheses will be sent to USAID with short abstract style backgrounds for input and discussion.

***Stage Two: Hypothesis Verification (November-December 2013)***

This stage is a deeper examination of the hypotheses using tools such as Literature review, data analysis and assembly, preliminary modeling, stakeholder verification etc. This process is guided by a series of questions:

- Is there current work on this question and if so what have they found?
- What are the potential gender issues?
- What are the potential cultural issues?
- What are the potential policy issues?
- Are there educational and training innovations that address the issue in whole or in part?
- Does ICT4D provide potential solutions?
- Is there enough data to address the issues with needed precision?

***Stage 3: Solution Space Articulation (January-February 2014)***

This stage uses the information gathered and the feedback given in stages one and two to draft a series of solution space briefs based on the hypotheses and subsequent research. These briefs will be reviewed by the core GCFSI team and USAID to determine which have the highest potential, and the resulting set will be the basis for drafting the RFA each year. At this stage the MT leads and center leadership will work to integrate the results from stages one and two create a slate of investments that integrate the work including and that resolves differential strategies, creating an integrated and interdisciplinary understanding of the problems within a food system context that can be invested in by GCFSI.

**Deliverable:** GCFSI Investment Priorities Summary to USAID that will serve as the basis for the RFA development in March 2014.
This will provide the contractual approval of focus areas as stated in the cooperative agreement.

[3] This term has generated a fair level of discussion and concerns have been raised that hypothesis generation is too rigid a process to create innovation. Some of this is a sematic argument but some is rooted in the real issues surrounding our approach. Any proposed intervention can be distilled to a hypothesis for testing and that level of discipline in developing investment priorities is what is needed to remediate the process.

**Year Two Phase II**
**Annual Program Statements (APS)**

Based on the initial research, gaps in knowledge, and current related activities in the consortium, an APS will be developed that serves as the reference point for activities to be invested in throughout the year on a rolling basis until funding is exhausted. This program statement will outline the priorities of GCFSI for phase II each year to provide clear communication the center's priorities, the annual strategy and expected outcomes of the annual program. The GCFSI core team would deliberate and approve the investments as a guiding committee with the annual strategy as the reference point for alignment with GCFSI.

### *Stage 1: Definition of problem framework (October 2013 – January 31, 2014)*

During this stage, which runs in parallel to Phase I of year two, the GCFSI Core Team will discuss and identify a problem framework that will guide GCFSI investments in Phase II. The framework will identify guiding questions, main objective, and goal and potential geographies. The result of this s an annual set of priorities and a funding strategy for achieving them.
The GCFSI directors will issue, no later than January 31, 2014, and complete problem framework.

### *Stage 2: GCFSI Fast-track Implementation Priority (Feb. 1-28, 2014)*

1. **Feb. 1-7, 2014:** Based on the problem framework, GCFSI Megatrend Leads can each submit a concept note, list of deliverables, complete list of staffing with details of their roles, and a budget to implement specific innovative ideas within the project framework. Proposed Project Teams[4] must incorporate the crosscutting themes (ICT4D, Gender and TSC) as much as possible for proposals to be funded. Long-term project proposals are preferred, but due to the nature of the GCFSI funding, project funding will be year-to-year. In Year Two, funding needs to be requested to cover up to Sept. 30, 2014 only, to help the projects match the GCFS funding cycle. Thereafter, budget proposals can be annual.
2. **Feb. 8-28, 2014:** GCFSI Management Team[5] will discuss proposals, recommend changes as needed and decide on funding. GCFSI management will create a separate sub-account for each funded Project Team, and will distribute those funds to the team lead to manage per the approved budget and proposed plan. Funding will be allocated to the teams by the end of February early March.

### *Stage 3: Annual Problem Statement open funding to GCFSI, MSU and its GCFSI partners (March-April 2014)*

1. **Mar. 1-15, 2014:** Based on the problem framework and the funded GCFSI fast-track projects, the GCFSI Core Team will develop an APS to seek proposals from MSU, Wageningen, TERI and Lincoln to fund specific projects that will fill gaps within the framework.
2. **Mar. 16- April 15, 2014:** Proposals will be reviewed and funded by the decision of the GCFSI Core Team.
3. **April-Sept. 2014:** Y2 Implementation.
4. **July-August 2014:** Project teams propose new scopes of work and request for funding based on results to date.

[4] We are moving away from the term Megatrend Team to Project Teams.
[5] Ajit Srivastava, Reitu Mabokela, Chuck McKeown, Maria Murphy.

# APPENDIX II

## The Question

Where and how can multipurpose legumes* be scaled for sustainable intensification of maize systems and what would the potential impacts be, in the medium term, across the food system** in Malawi?

*Multipurpose legumes are defined as those that provide multiple services, producing food and vegetative biomass for enhanced soil productivity, resilience to climate change and human health, e.g., pigeonpea, doubled up legumes (pigeonpea overstory, pulses such as soybean and groundnut understory), and climbing beans

** Herein the definition of food systems is from Erikson 2008[6]- The relationships between social and ecological environments that comprise food provisioning systems, as well as the practices themselves; the results produced by these processes and practices on social and ecological environments, such as improved security, pollution and social welfare, including economic development; and other determinants of food security stemming from the interactions of the above factors.

## The GCFSI Multifaceted Approach

Within the bounds of the question we are asking for implementation in year two are numerous implementation questions regarding scaling the innovation and what the impact of scaling could be across the food system. Below are a series of sub topics that, while admittedly not an exhaustive list, are provided as discussion starters for how the different components of GCFSI can bring their capacity to bear on the question.

- What geographic extent is feasible given ecological, soil rainfall and other constraints?
    - What education and outreach efforts are needed to reach this scale on smallholder farms?
        - ICT or extension?
        - Gender issues?
- What level of climate resilience does the system provide to enhance food security?
- What value added industries are possible for the new cultivars and what job creation potential do they have?
    - What developments in the food workforce are necessary to achieve this?
    - Gender differentiated approaches?
- Are multipurpose legumes suitable for urban production alongside the maize and other crops grown in urban areas?
    - What education and outreach is needed for expansion into urban production?
        - ICT or extension?
    - Gender differentiated strategies
- What is the value chain development needed to bring these cultivars to market?
    - Low loss dry storage
    - Logistics
    - Retail and market
    - Pricing and market information
    - Gender implications

[6] Ericksen, Polly J. (2008). Conceptualizing food systems for global environmental change research. *Global Environmental Change, 18*(1), 234-245. doi: http://dx.doi.org/10.1016/j.gloenvcha.2007.09.002

# APPENDIX III

## GLOBAL CENTER FOR FOOD SYSTEMS INNOVATION

## FUNCTIONAL ORGANIZATIONAL DOCUMENT

# GCFSI GOAL

Create, test and enable the scaling of effective solutions and evidence-based approaches to a defined set of future critical global trend impacting food systems.

# GCFSI OBJECTIVES

**Objective 1.** Provide decision support to improve data quality and access, as a way to promote evidence-based decision making in food systems.

**Objective 2.** Accelerate the creation, testing and scaling up of transformative innovations, technologies and approaches in food systems.

**Objective 3.** Create a multi-disciplinary network that shares knowledge, promotes learning, and builds mutual capacity in the area of food systems innovation.

# THE CHALLENGE

To develop an operative structure that allows the center to achieve its goal, and accomplish each of its stated objectives.

# THE PROPOSAL

Align GCFSI resources to each of the GCFSI objectives in order to ensure specific lines of accountability and deliverables per team.

# THE STRUCTURE

## ADVISORY BOARDS AND FUNDERS

GCFSI is part of the MSU system. It is also funded by USAID. As such, it interacts with four bodies:

1. **Internal Advisory Board:** composed of the MSU Provost, VP for Research, various MSU Deans, and the two GCFSI directors, this board is the core connection between MSU and GCFSI. The board helps to identify and provide MSU resources to GCFSI, and it helps to identify university wide solutions for GCFSI needs. Members of the board also represent GCFSI in various high-level fora of the US Government and the private sector.
2. **International Studies and Programs:** The center is administered by ISP, which provides fiscal and personnel management support and connections with other related

projects, grants and initiatives. ISP functions as a unit that can bring together the various colleges involved in GCFSI activities. GCFSI coordinates with the ISP Dean, and GCFSI Co-Directors attend ISP directors' meetings.

3. **External Advisory Board:** The EAB (former External Advisory Committee (EAC)), will perform formative and evaluative assessment of the Center's activities. The EAB will be comprised of leading researchers, educators and practitioners with relevant expertise who will assess the Center regularly and advise it on future plans. Members will be selected from various sectors including donor agencies, industrial partners, NGOs, and local government.
4. **USAID:** As funding agency, GCFSI coordinates various efforts with USAID via the project's AOR Ken Scheffler. With funding originating from various sources, we also coordinate with Susan Owens from the Bureau for Food Security. Various USAID members liaise with GCFSI team members depending on their area of expertise. However, the only official channel of the project with USAID is via the AOR.

## GCFSI MANAGEMENT

GCFSI is managed by a group of four, who have been appointed as Key Personnel per the agreement between USAID and MSU. These are Ajit Srivastava and Reitu Mabokela, who are joint co-directors. The team also includes two assistant directors Chuck McKeown and Maria A Rodriguez-Murphy.

1. **GCFSI Directors:** The Project Co-Directors have overall responsibility for the management of the Center, including strategic direction, allocation of resources, partnership alliances, intellectual and scholastic leadership. They work with MSU Corporate relations to build connections with other funders. They represent the Center before USAID. Form part of the GCFSI Management Team.
2. **GCFSI Assistant Director for Management** (former Project Manager): The Assistant Director for Management monitors and evaluates the implementation of the program, and provides fiscal and programmatic support. Works closely with MSU's Office of Contract and Grant Administration to ensure quality contractual and financial administration of the USAID award and partner sub-awards. Develops subcontracts, sets-up meetings and symposia, coordinates preparation of reports and proposals, and support the management team in the administration of funds allocated to research, education, and outreach projects in the Center. Reports to the GCFSI Directors. Forms part of the GCFSI Management Team.
3. **GCFSI Assistant Director for Operation and Outreach:** Leads outreach initiatives and knowledge sharing. Facilitates networking across GCFSI, MSU, HESN and various Center stakeholders. Leads student engagement including TSC and Student Innovation Grants. Reports to the GCFSI Directors. Forms part of the GCFSI Management Team.
4. **Support staff:** GCFSI works closely with the ISP Director of Finance and Human Resources and the ISP assigned GCFSI Fiscal Officer. They provide fiscal support to the project. GCFSI also receives administrative support from the staff in the office of the ISP Dean. The ISP Assistant to the Dean leads most travel efforts, and coordinates the work of the Dean's staff for GCFSI. Other staff in the office of the ISP Dean provide support in travel, student hires, GA hires, personnel hiring, purchasing, procurements,

equipment, and supplies. The ISP webmaster, is also the webmaster for GCFSI. The ISP IT lead also provides IT services to GCFSI, including purchase of software and hardware, as well as networking. The Assistant Director for Management is the link to this team concerning GCFSI work, and they coordinate with the Assistant Director for Management concerning delivery of services to GCFSI.

5. **Communications and conference planning:** GCFSI works closely with staff from the Center for Global Connections (CGC). CGC provides communication support to GCFSI via its communication manager, dedicated 22% a month to GCFSI. The ISP Communications Director also provides communications support to GCFSI also on a 20% basis. CGC also provides logistics and planning support for GCFSI conferences and events via their special projects coordinator. Both coordinate work and efforts for GCFSI via the Assistant Director for Management.

## DSI TEAM

**Responsible for the first objective of the Center, namely: Provide decision support to improve data quality and access, as a way to promote evidence-based decision making in food systems.**

DSI work is developed under the direction of the DSI Faculty Lead, with support from the College of Engineering, Department of Computer Science and Engineering. DSI work comprises both systems development and applications. The Associate Chair of the Department of Computer Science and Engineering leads DSI systems developments, overseeing a team of MSU students and software engineers. The DSI faculty lead provides core support in the development of DSI applications. In their work, they provide support to the other units and faculty of GCFSI, as well as to external clients, including USAID. As such, this team is required to liaise with the science and project teams, and coordinate work with the GCFSI management. The DSI Faculty Lead reports directly to the GCFSI directors.

The DSI Team is responsible for the following results:

**IR1.1:** *Conducting and disseminating advanced analytics on existing and future problems and development patterns related to food systems to GCFSI, academics, USAID, and policymakers*. The focus here will be on conducting advanced data gathering and analysis, requested by different stakeholders, to provide them with a factual basis to support policy and program development, and the definition of solutions to specific food system challenges.

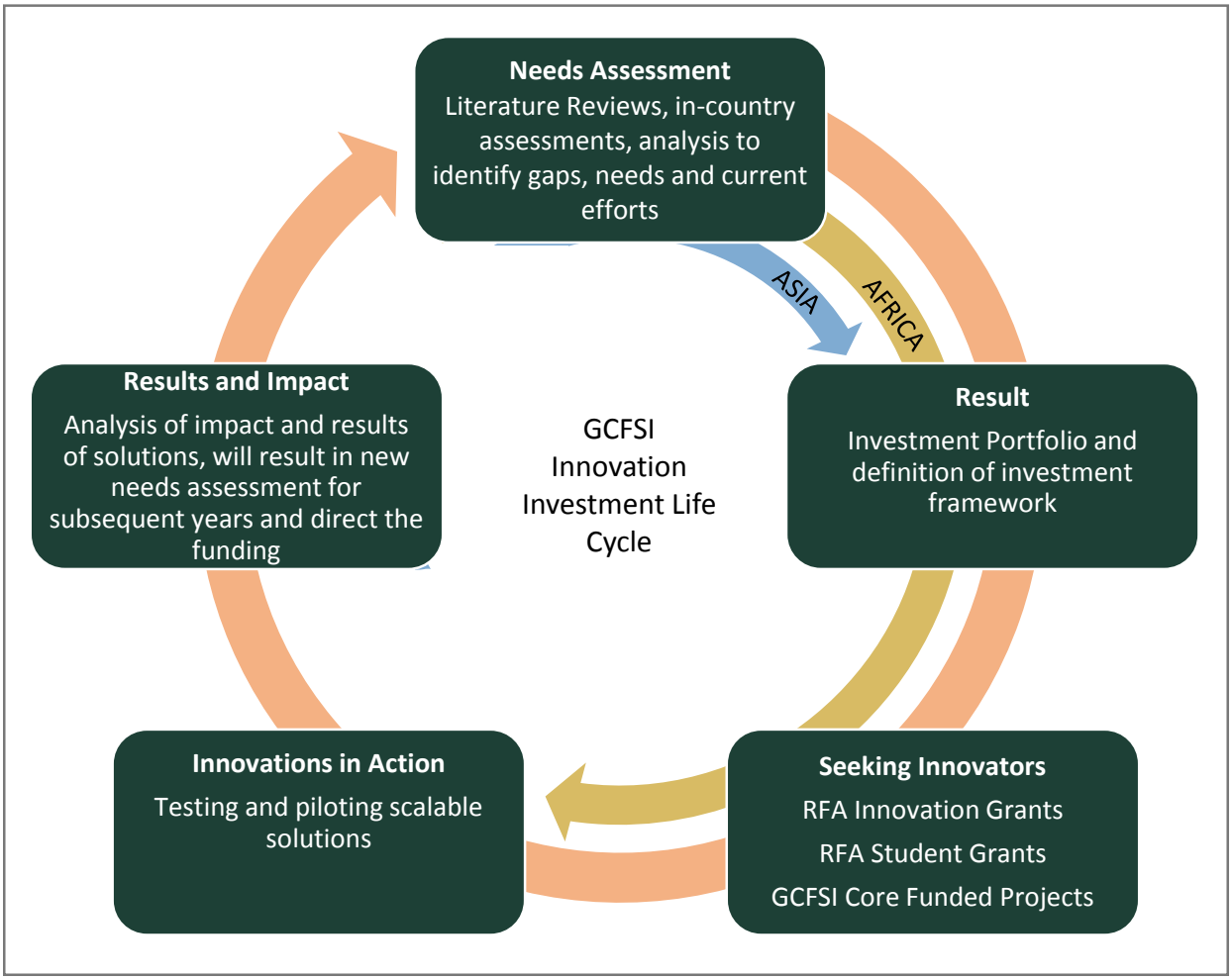
**IR1.2***: Provide a decision support analytics and data resource concerning food systems to support the development community.* This second purpose of the DSI will be to develop different functionalities that will support the data access needs of the community at large. In this effort, GCFSI will collect, organize and make available food systems related data, categorized corresponding to the megatrends and crosscutting themes of the GCFSI project.

## SCIENCE TEAM

**Responsible for the second objective of the Center, namely: Accelerate the creation, testing and scaling up of transformative innovations, technologies and approaches in food systems.**

The *science team* comprises the community of scholars (from MSU and its partners), who are the thought leaders for the Center. They help define the technical direction of the Center, identify the innovation pipeline, and define direction of investments in terms of geographies, content, scope. Their job is to accelerate the creation, testing and piloting of innovations. To do so, they leverage the capabilities of the scientists of the team to ensure that GCFSI is focusing efforts and funds in investments that have the greatest possibility of producing impact on the transformation of food systems.

The community of scholars is comprised of members from various Colleges in MSU, as well as TERI, WUR and partners from the various GCFSI grantees, thereby creating a multidisciplinary team of problem solvers.




The *Core Technical Team* (CTT) works with the GCFSI Management Team to guide the 5 steps in the innovation investment lifecycle identified in the graphic. It provides intellectual scholarly guidance to GCFSI. The Co-Directors work closely with the CTT and participate in the CTT meetings. The CTT:

- Guides the research of the center, and proposes direction for the needs assessments that will define the investment portfolio for GCFSI.
- Produces the Innovation Pipeline Deliverable for USAID, which will serve as the basis to draft GCFSI RFA and other funding documents.

- Participates in the committee that selects grantees.
- Provides guidance to the GCFSI Regional Innovation Hubs concerning technical delivery and innovation.
- Connects with the various GCFSI project teams (both core funded and grant funded – not including student innovation grants) to obtain the technical and scientific data that can help the center define future funding.

The CTT is supported by a technical coordinator who is responsible for calling CTT meetings and providing administrative support to CTT meetings. The coordinator:

- Assist in the connection with the various GCFSI project teams (core funded or grant funded – not including student innovation grants).
- Supports the production of technical reports that can serve as basis for the CTT to propose funding direction.

The CTT is responsible for the following results:

**IR 2.1.** *Increase assessment, analysis, and evaluation of innovations, technologies and approaches in context*. This IR is met with indicators that measure the white paper development process and the effectiveness of GCFSI research products, by their citations in various fora, publications or projects.

**IR 2.1.** *Expand the research, development, design and implementation of transformative innovations, technologies and approaches in food systems.* Following the white paper development process, this result and its indicators focus on the capacity of the research to elicit innovative solutions and support their implementation. Accordingly, GCFSI will measure here the concept notes, applications and ultimately the grants it will issue to the best and most innovative ideas to the problems and scenarios identified in the white papers and other GCFSI research documents.

**IR 2.3.** *Foster and expand collaborations among private and public sector actors and local communities for scaling up of solutions.* With a commitment to building networks, linkages and identifying the sources of the best solutions to critical food systems challenges, GCFSI will seek and develop connections with solvers and thinkers across a multitude of sectors and geographies. This effort will measure the capacity of GCFSI and MSU to leverage its connections with public and private sectors, and to promote investments in the area of food systems innovations.

## OUTREACH AND NETWORK

**Responsible for the third objective of the Center: Create a multi-disciplinary network that shares knowledge, promotes learning, and builds mutual capacity in the area of food systems innovation.**

The Assistant Director for Operations and Outreach is responsible for:

- Building a network for collaborative problem-solvers.
- Catalyzing ongoing knowledge sharing and learning.
- Creating new disciplines, collaborative platforms, and learning opportunities that train students, staff, and faculty to solve development challenges.

- Engaging students, staff and researchers globally in solving critical food system challenges.

The Assistant Director for Operations and Outreach reports to the GCFSI Directors. He oversees the work of:

- Lead of the Translational Scholar Corp.
- The Knowledge Management development team (MSU Global / QED).
- A network and outreach specialist.

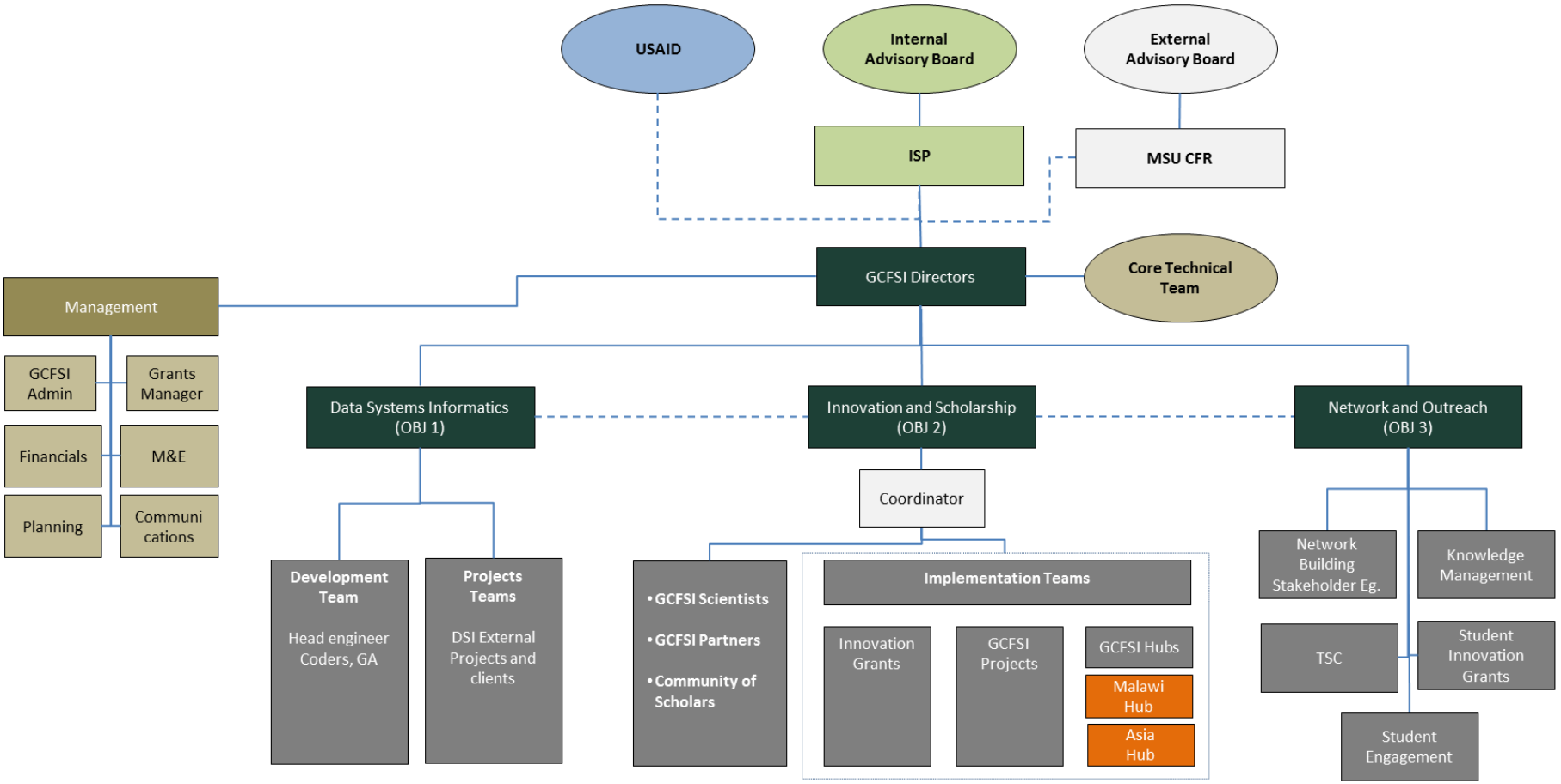
The Assistant Director for Operations and Outreach and his team is responsible for the following results:

**IR 3.1.** *Build and support a network for collaborative problem-solving among GCFSI, USAID, HESN Development Labs and the development community.* The strength of HESN is directly related to the collaboration among its members and beyond, to identify promising solutions to key issues. As part of that network, GCFSI will aggressively promote the collaboration among stakeholders in the food systems and education space as a means to enhance collaborative problem solving.

**IR 3.2.** *Catalyze ongoing knowledge sharing and learning among GCFSI, USAID, HESN Development Labs and the broader development community.* Built on the concept of collaboration as a support for innovative problem solving, GCFSI will develop knowledge sharing platforms and will measure the effectiveness of these to engage problem solvers directly with the critical problems identified.

**IR 3.3.** *Create new disciplines, collaborative platforms, and learning opportunities that train students, staff, and faculty to solve development challenges.* With the knowledge gained from GCFSI work, analysis and collaborations, GCFSI will develop new classes and platforms that contribute to the iterative process of problem solving in the food systems space, as a way to leave a legacy and ensure sustainability of the effort after project completion.

**IR 3.4.** *Engage students, staff and researchers globally in solving critical food system challenges.* As part of the community of problem solvers, GCFSI will specifically seek and engage students and researchers as a way to promote critical thinking, and develop understanding and methodologies in students and researchers who will become the professionals implementing future solutions and food innovation programs. GCFSI will create various innovation hubs that will serve as a basis to conduct research in the megatrend areas. Of importance to MSU and USAID is the effective collaboration within the university space, and GCFSI will measure this in terms of college interactions.

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